

Fever various



1825

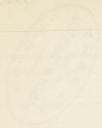
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An
Inaugural Dissertation
Paper

On
Yellow Fever
As it appeared in Savannah in 1822

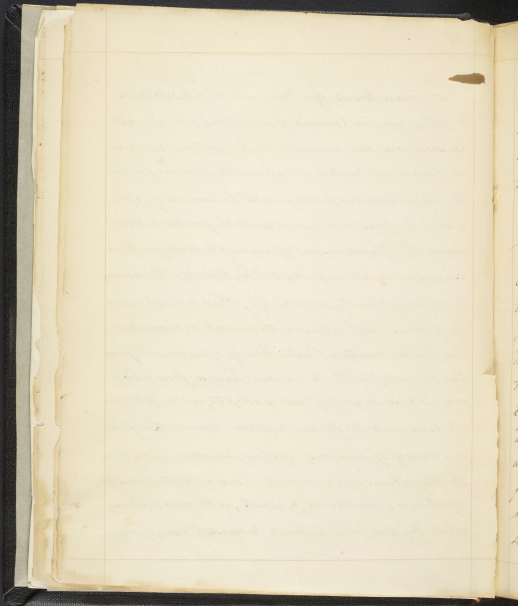
By
Paul Hamilton Wilkins
of
Georgia



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Letter

The disease termed by Anurologists *Elyphus Sclerodas* or yellow fever, an Endemic of a Tropical climate, had for some years been remarked for its regular occurrence in Savannah; but did not assume its peculiar frightful appearance and fatality until the summer of 1820: when by its utmost virulence it excited the greatest interest among the Physicians, and offered ample scope for the exercise of speculative conjecture. This like all other diseases is modified by climate, mode of life, & that infinite variety of causes which influence the animal economy, and has therefore created a fluctuation of opinion and practice coincident with its various changes from which circumstance no unity of view is adopted, and no determinate data prescribed for our practice. Governed therefore by a variety of opinions & systems founded upon them the Physicians of Savannah have adopted plans of practice as diametrically opposite, as the conclusions which they draw from different premises. Placed by my

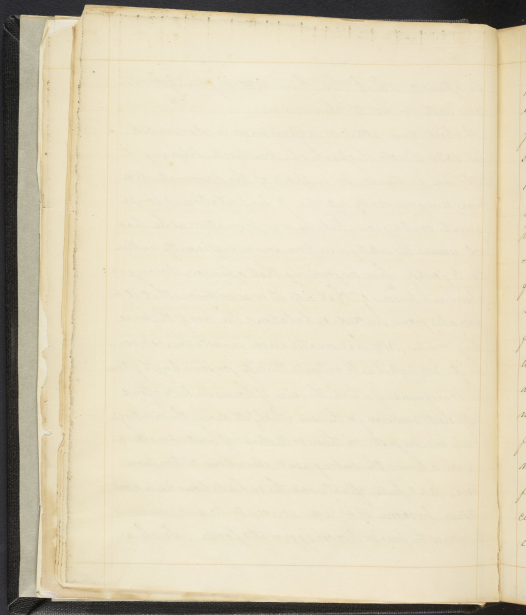


esteemed friend and tutor Doct. H. B. Daniell, in the Hospital of that city in the year 1822, I had an opportunity of observing the course of the fever, of becoming acquainted with the different views and plans of treatment of each of the attending Physicians, and the preliminary remarks which I shall make are the results of my observation on the comparative success attending them.

With regard to its cause the greater part of the Medical world, has come to the same conclusion. Originating in situations exposed to the exhalations of putrid vegetable matter, & affecting the system as other miasmatic diseases do they have been compelled to discard the pernicious, somewhat antiquated opinion of Contagion. We however find some who obstinately adhere to, and attempt to promulgate that doctrine, against whom argument upon argument has been adduced facts sufficient to carry conviction to the greatest doctored upon earth, still they with bravado their aspect we are induced to believe that they are ashamed to renounce

an opinion, which they have not ingenuity to main-
tain with credit to themselves.

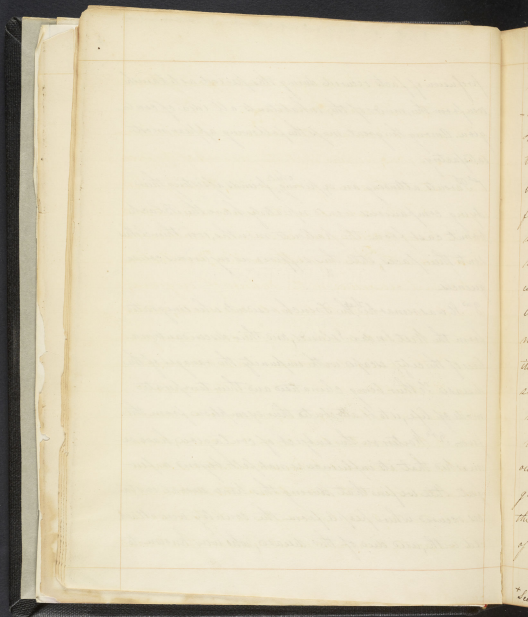
A short time after its appearance in Savannah
in 1820 Doct. Hays of New York believing it
to be an instance in support of his favourite doc-
trine unequivocally as to its importation & conse-
quent contagion, but he was premature as he had
not received his intelligence from sources sufficiently authen-
tic to justify him in forming that opinion. Among all
observers of that city it was notorious that it ori-
ginated from putrid exhalations. The fire of the pre-
ceding winter (1819) had created such devastation, as to ren-
der it impossible to rebuild the city for some length of time
in consequence of which, the ruins of houses in some degree
sufficient reservoir for the rain which fell during the months of
July and August, on these collections of water & matter of
various kinds the subsequent elevation of temperature
had full effect, and the exhalations in a short
time became so copious concentrated, and virulent as
to produce the fever in its most aggravated form. Such a



profusion of facts occurred during this period, as to banish even from the minds of the inhabitants all idea of contagion. Among the great mass the following appear most satisfactory.

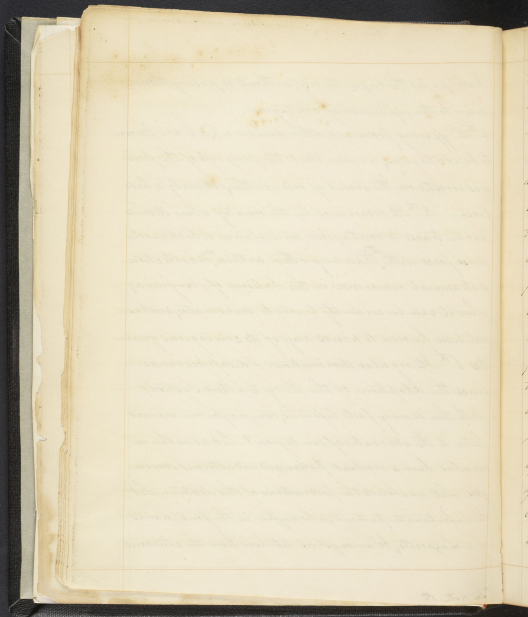
1st Parents attending an expiring ^{child's} friends assisting their dying companions would repeatedly have the Black vomit cast from the patients mouths, over their clothes & into their faces, still they suffered no injurious consequences.

2nd It was remarked ^{that} the French residents who emigrated from the West India Islands, and their descendants natives of the city, escaped with impunity the ravages of the disease. It being climatic and their temperate mode of life, it is to be attributed their exemption from the fever. 3rd Writers on the subject of contagion, have remarked that its influence is not felt beyond a few feet. Still we find that, during this time several instances occurred where people from the country were attacked with, and died of this disease, who were known to



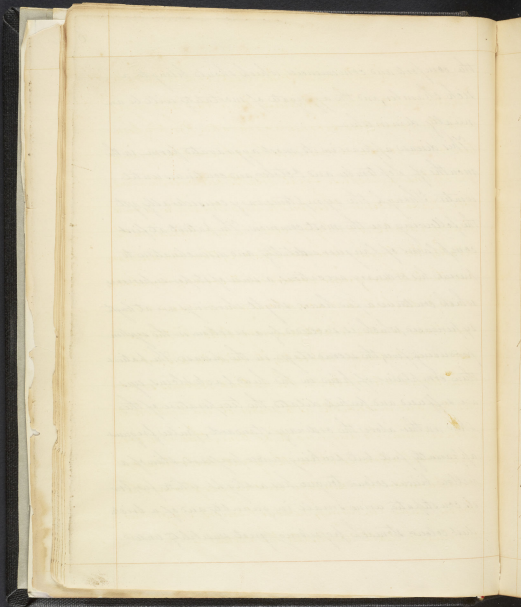
have passed through the city, without exposing themselves to the influence of contagion.

4th Differing from all other diseases which are known to be contagious, we find that the progress of the fever was arrested on the advent of our weather, still by a hard frost. 5th Its recurrence in the country where it comes not be traced to contagion, an instance which carries more force with ^{it} than any other within ^{my} recollection is its annual recurrence in the Interior of Virginia, where it can be evidently traced to miasmata, and has not been known to winced any of its contagious qualities. 6th Its regular diminution & disappearance since the adoption of the Dry Battery System. With thus so many facts before us, can we for one moment listen to the advocates of contagion? Let us rather in our cities have a vigilant police, and industrious scavenger. Let us abolish the productions of this doctrine. Let the unfortunate patient, who suffers in the foul wards of a Lazaretto, be amongst us let him have the attendants

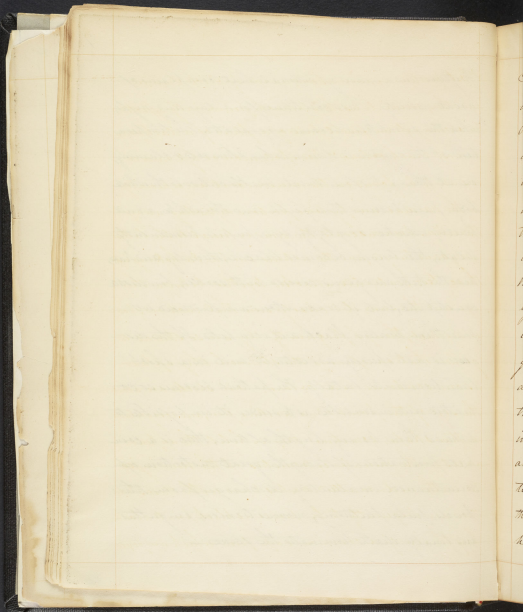


the comforts and conveniences which should belong to a sick chamber, and the aggregate of mortality will be unusually diminished.

This disease appears in its most aggravated form in the months of September and October, and continues until winter. Though the symptoms vary considerably, yet the following are the most common. The patient at first complains of languor and debility and disinclination to pursue his ordinary avocations, a sense of stupor and feverishness which continues a few hours, slight shiverings are at length experienced, which is succeeded by a reaction in the system producing fever, the second stage in the disease. The patient then complains of pain in his head back of the eyes are suffused and pupils dilated, the temperature of the skin rather above the ordinary standard, pulse frequent apparently full but sinking under pressure, skin of a yellow bilious colour tongue has a slight white fur, bowels constipated, urine small in quantity and of a brick dust colour, stomach possessing great sensibility under



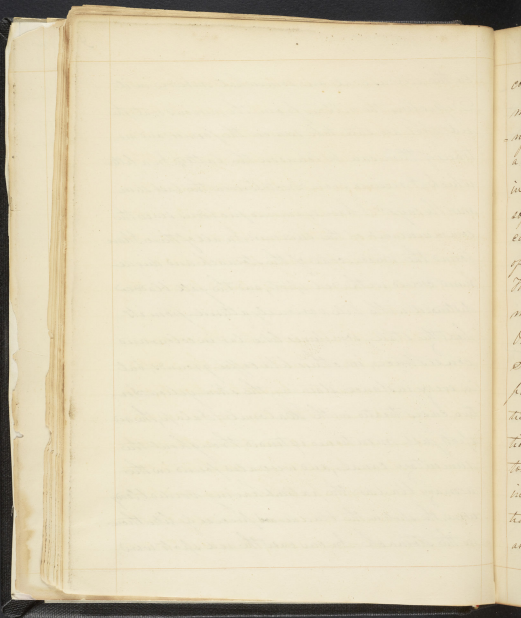
profuse and a sense of internal heat, complains of
 great debility. These continue, for a day and night,
 when the symptoms become aggravated. The tempera-
 ture of the system is diminished, skin cold & clammy,
 and at times a profuse sweat breaks out over the whole
 body, pulse becomes thin, feeble and threadlike, a dull
 muddy, idiotic or glassy eye, pupils permanently
 dilated, the tongue becomes black, thin dry and hard,
 and the teeth and gums covered with cordes, bowels often
 constipated, but if evacuations are produced we
 find them watery, black and very fetid. If the dis-
 ease is not speedily arrested, it will in a short
 time terminate fatally. The patient becomes so co-
 matose and insensible as to render it impossible to
 arouse him for any length of time, there is a com-
 plete prostration of strength, great distortion of
 countenance, involuntary discharges from the
 bowels, pulse fluctuating, nervous tremors, singultus
 and finally death terminates the scene —



Post mortem examinations, made by Doct. Daville and others, reveal to us the stomach principally affected. On opening it we find it full of a fluid of a dark green almost black colour. "Red spots, more or less numerous are to be found on the mucous coat and especially in the cardiac and pyloric portions, disjuncting away the villous & nervous coats, the veins external to the latter are found turgid, and the arteries empty. On holding up these two coats &c. attached together between the eye and the sun, it is clearly seen that each red spot is distinct, though frequently they are so crowded together that on opening the stomach they appear as one continued red colour. These spots are about the size of the point of a writing pen, and irregular in their shape, sometimes they exhibit the appearances of the minute extremities of the veins injected with red matter. In the pores with these spots there are frequently to be perceived black points about half the size of a common cap pin, which are fixed

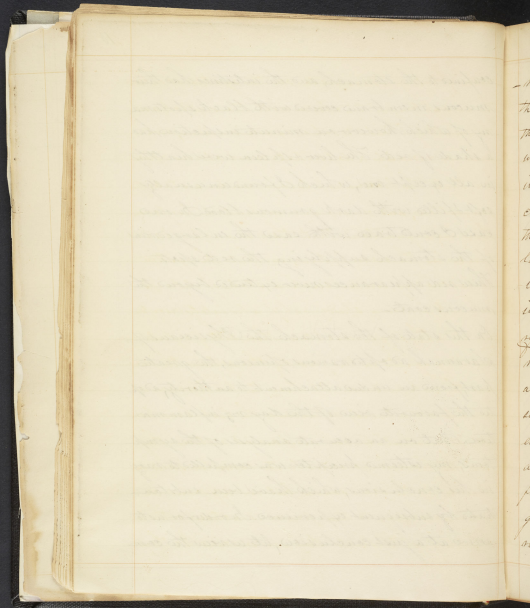
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on the villous coat and somewhat imbedded in it. Dissecting the villous from the mucous coat, the red spots are still to be seen on the former and no traces of them can be found on the latter. In a letter which I received from Doct. Scriven the last summer He says "I have examined five bodies since the commencement of the summer. In all of these I have found the mucous coat of the stomach and duodenum covered with red spots, and the gall bladder distended with bile, variously altered from its healthy state, sometimes like tar in colour and consistence, in others like coffee grounds, but in every instance staining the skin yellow. In two cases treated with Calomel & Salap, the red spots just mentioned extended throughout the alimentary canal, and were also found in the urinary bladder, the patient having voided bloody urine, the spots in the bladder as precisely like those in the stomach. In one case the red spots were

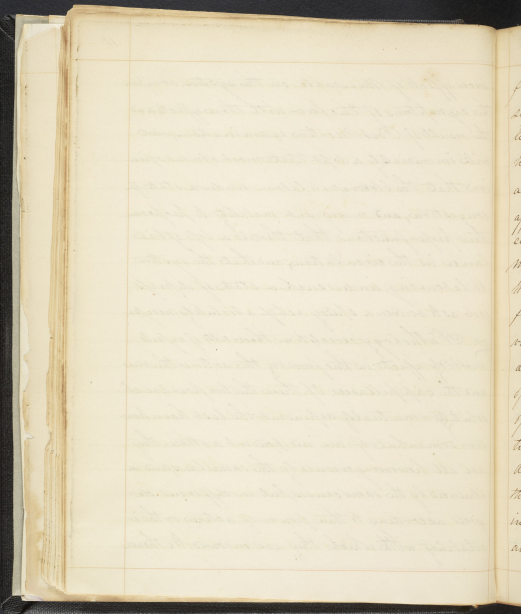


confined to the stomach, and the intestines had their mucous membrane covered with black spots, many of which however on minute inspection had a shade of red. The liver & spleen were healthy in all except one, which I found unusually soft & filled with dark grumous blood. In one case I could trace with ease the enlarged veins of the stomach supplying the red spots. These red appearances never extended beyond the mucous coat.

On this state of the stomach the Physicians of Savannah adopted various opinions, the greater part found an undue attachment to authority, adopted the favourite view of the day viz inflammation. But on an accurate analysis of the symptoms, my esteemed preceptor was compelled to vary in his conclusions, which have been substantiated by subsequent experience. In order for us to arrive at a just conclusion, let us review the com-



- now effects of Miasmata on the system, compare
 the symptoms of the fever with those effects, and
 the result of Post Mortem examinations, we
 will immediately adopt that most obvious opin-
 ion that the blood vessels labour under a state of
 congestion, and consequent inability to perform
 their proper functions, that there is a loss of bal-
 ance in the circulation, and that the system
 is labouring under such a state of depres-
 sion as to render a speedy relief absolutely neces-
 sary. Pathology reveals to us three sets of vessels
 morbidly affected in the fever viz the arteries the veins
 and the capillaries. Of these the two first are ab-
 solutely & mutually dependent, the last have how-
 ever somewhat of an independent action, they
 are all however governed by the same laws, and in-
 fluenced by the same causes, but in different de-
 grees according to their power of action, or the ir-
 ritability with which they are endowed. We there-

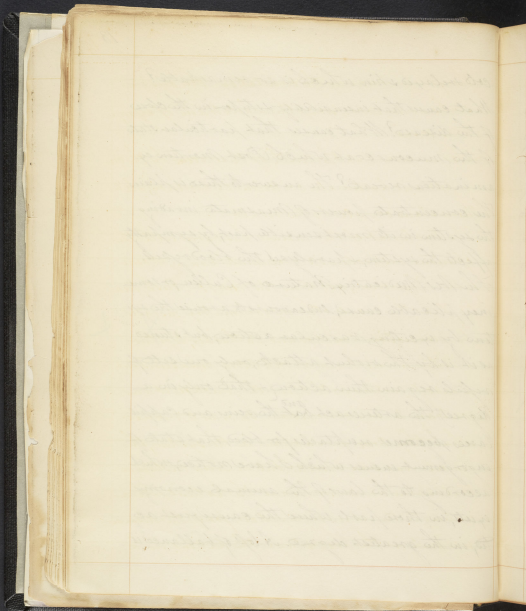


fore find that though all are affected they still
 suffer in different proportions, as an instance,
 let us take the cold stage of the intermittent fever,
 here we find the capillaries completely in
 active, the veins sluggish, and the arteries less
 affected than all, just the same is it with the dis-
 ease of which I am treating. Assigning then
 miasmata as the cause, let us review its effects.
 We find that its first impression on the system,
 from the simple intermittent to the most aggre-
 vated form of disease, is so powerfully sedative,
 as to produce a paralysis, if I may so term it,
 of the blood vessels robbing them of their power
 of action, and suffering that stage of conges-
 tion to ensue which we notice in this disease.
 All the symptoms indicate this. What causes
 that state of languor & debility which usher
 in the disease? What causes that sluggishness
 and inactivity in the capillaries, the consequent

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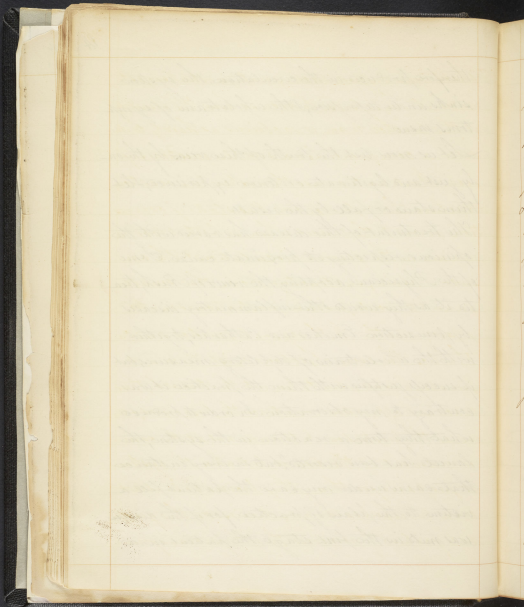
cold & delayed skin which is so remarkable?
 What causes that insensibility & stupor in the close
 of the disease? What causes that particular state
 of the mucous coat which Post Mortem ex-
 aminations reveal? The answer to these is plain
 The concentrated powers of Miasmata invading
 the system in its most sensible part, by sympathy
 affects the system, & paralyzes the blood & perf.
 The vis Medicatrix Nature of Callos or some
 inexplicable cause, endeavours to arouse the sys-
 tem by exciting vascular action, but stupor
 as it is by the violent attack, only one side of
 vessels regain their action (& that only in a
 degree) the arteries act ^{and} but the veins and capil-
 laries become receptacles for blood, that state of
 engorgement ensues which I have noticed, which
 according to the laws of the animal economy
 exists, in those parts where the cause first ac-
 tues, in the greatest degree. A loss of ballance is



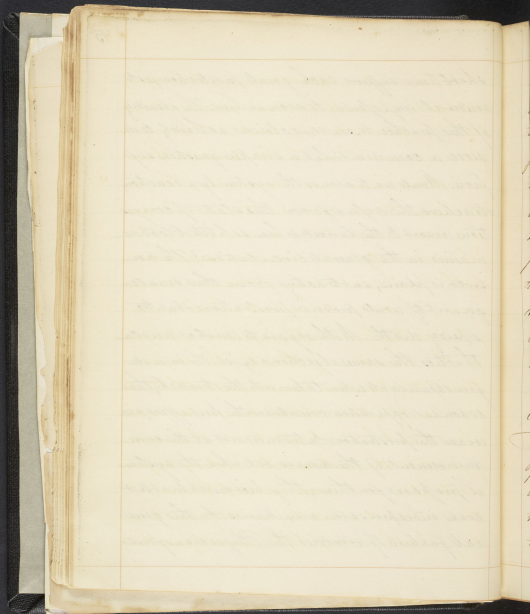
therefore produced in the circulation, the system sinks under depressing the whole train of symptoms ensue

Let us now test the truth of these views by the only just and legitimate criterion experienced, let them stand or fall by the result.

The treatment of this disease has varied with the opinions respecting its proximate cause. Some of the Physicians, adopting the views of Rush, treat it as they would other inflammatory diseases by purgatives Emetics and Cathartics, together with the whole train of depletory measures, but if success justified with them the practice it was contrary to my observation. In order to produce what they term a reaction in the system, the lancet has been resorted to, but in every instance that came under my care the patient fell a victim to the plan of practice, for if the disease was mild in the first stage, the patient in a

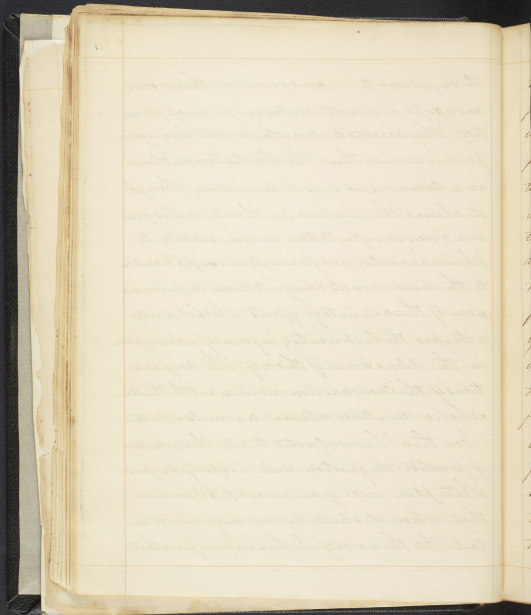


short time suffers such great prostration, as to render it impossible to arouse him. The absurdity of this practice to me is so obvious as hardly to deserve a comment. Let a simple question suffice. Would we to arouse the system by a reaction, to relieve the vessel from this state of congestion resort to the lancet when so little blood remained in the general circulation? The answer is plain, subtracting from that small quantity would produce prostration that too speedy death. With regard to Emetics and Cathartics the same objections exist. They in a degree stimulate when taken into the stomach, their evacuant operation counteract the first effect, increase the prostration. Introduced not at the commencement of the disease, but when the system is prepared for them, they become valuable & even indispensable auxiliaries. In this general failure of remedies the Physicians found

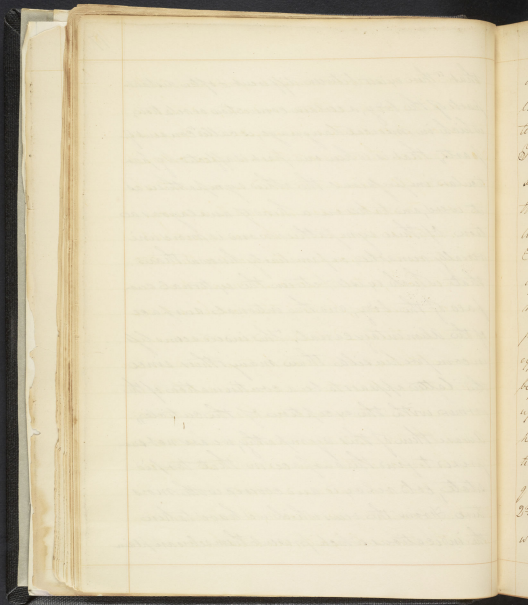


it expedient to discard some of their views,
and adopt a directly contrary plan of prac-
tice. They resort to stimulants, but here again
failure awaits them. The Spiritus Sertini thus
as a Remedy resort was administered, though
it claims the highest authority & has gain-
ed a deserved reputation in diseases of a Ty-
phoid character, yet from its misapplication
to the disease, or its being ill timed, it produces
none of those salutary effects which I daily
witnessed the last winter, in fevers of a low grade
in the Alms House of this city. The prepara-
tions of the Carbonas Ammonice with the al-
coholic mixtures & shared a similar fate.

Now that I have objected to all these modes
of practice the question will properly be put,
what plan will you resort to? I answer
that which it shall be my duty now to de-
tail. In the words of Johnson, we find that



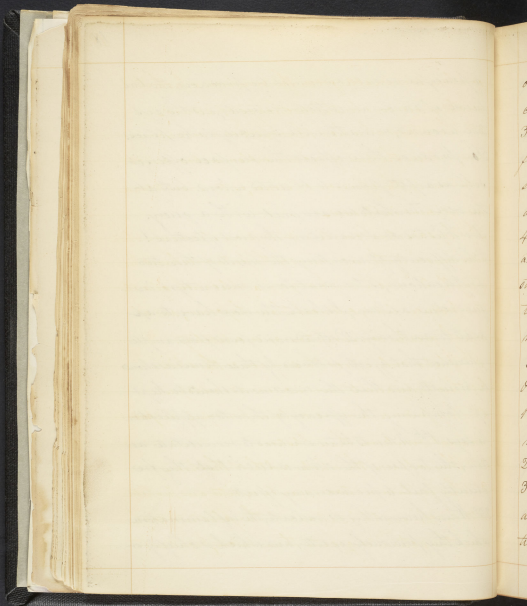
that "there exists between different & often distant parts of the body, a certain connection or relation, which in medical language, is called *Consent of parts*, that is when one part is affected by particular impressions the other sympathizes as it were, and takes on a kind of analagous action. Of these sympathies none is more universally remarked, or familiarly known than that which exists between the external surface of the body, and the internal surface of the alimentary canal. This indeed seems less incomprehensible than many others since the latter appears to be a continuation of the former with the exception of the cuticle. Aware thus of this sympathy, we are not surprised to find the surface in that torpid state, cold relaxed and covered with moisture. From the views which we have taken the indications which present themselves are plain



a powerful revulsion must be produced, the balance of vascular action restored, and the system aroused, or death will speedily take place. To produce these effects the surface offers itself as a fit point to be acted upon, but at the very threshold we are met with a query.

Are Blisters or Sinapisms the most effectual? The difficulty of comparing the merits of these two applications, is too great for so much a treatise in medicine as I am, I shall therefore have to appeal to an authority. Doct. Samille found from ample experience that effects produced by these remedies should be prompt, and that the excitement should be kept up. Comparing the efficacy of these two applications he says, 1st When Blisters are used to reanimate action, the torpor of the skin is such that they frequently fail to produce any effect.

2nd When however they do operate, the inflammation which they previously excite, and which is chiefly or



or alone scarricella, from the resolution which it creates, is removed by the discharge of serum.

3rd The stage at which they exercise a resolution of feet, between the time of exciting inflammation and its solution by the effusion of serum, is too short to cause an efficient influence.

4th They sometimes create a disturbing strangury which adds much to the sufferings of the patient & exhausts his strength.

5th Each succeeding application of a blister produces less excitement than the former, and a much greater exhaustion of excitability.

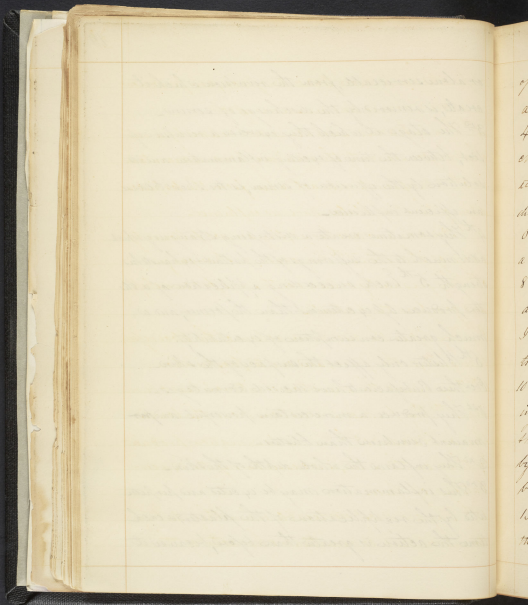
6th Blister only affect the surface of the skin.

Over these Rubefaciants have decided advantages.

1st They produce a more certain powerful and permanent reaction than blisters.

2nd They inflame the whole depth of the skin.

3rd This inflammation may be excited and perpetuated by the reapplications of the plaster & each time the action is greater than before, because it



operates on a more tender surface, and produces a more prompt and revulsive effect.

4th The inflamed surface is not relieved by a discharge, consequently the revulsive power is maintained.

5th Rubefacients will act when from the torpid condition of the skin, blisters have no influence.

6th Producing no discharge, they are not followed by a loss of strength. 7th They cause no strangury.

8th They frequently relieve restlessness, procure sleep, and compose the patient.

9th They lessen the disordered action of the blood vessels, tranquilize the pulse, and excrete perspiration.

10th They relieve the sensation of internal heat & burning. 11th They produce evacuations from the bowels.

12th The inflammation, produced by them on the skin, is increased during the exacerbations of fever.

13th They are most serviceable when they destroy the intermittent or remittent character of the fe

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- 100; and produce continued or constant fever, which
 gradually abates, and in a few days at farthest,
 the vascular action assumes its healthy state,
 without being able to fix the precise hour of such
 termination, and the patient finds himself unex-
 pectedly in the enjoyment of complete health.
 If any medicine can be said to exert a truly
 magic effect in this low form of fever it is the
 application of sinapisms. In one case which
 to me was very striking, I saw the patient comple-
 tely insensible, but as soon as these remedies began
 to act, vascular action increased, a new life was
 diffused through him, in other instances where
 patients were on the brink of dissolution, they have
 been so aroused by the remedies, as for a time to give
 hopes of a recovery, but the disease was too far
 advanced, and out of the power of man. These sin-
 apisms should be continued on the upper and lower
 extremities and over the epigastrium until the

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skin is inflamed, when we will find that they have equalized the circulation, imparted strength to the patient, and prepared him for the subsequent practice. It then becomes necessary to relieve the stomach of its four accumulations, for which purpose, the exhibition of Cathartics, become invaluable, and should be administered according to the idiosyncrasy of the patient, where ever it is admissible I prefer the following.

Rj Sub. Muris. Hydragiois gr. xv

Sulphur Aurat. Antimonici gr. j

Misco to divide in Cub. N^o IV. Give one every hour and one hour after the last powder.

Rj Oleum Ricini \mathfrak{z} j. or Sulphas Magnis \mathfrak{z} ij. The indications to be fulfilled by this prescription are plain, the mercurial purge operates on the bowels, and the antimonial preparation assists in accomplishing our principal object, determination to the skin, and equali

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zation of vascular action. At sometimes happens
that by the great operation of this medicine the pre-
vious excitement is counteracted, and the same
train of symptoms recur; a reapplication of the
sinapisms then become necessary, together with
the internal use of stimulants. Of these ^{simply the} Capsicum
Annuum (Bayonne pepper) in an infusion of Sopen-
taria Marylandica (Snake root) in the following pro-
portions

Rj Capsicae Annui Zij

Sopentariae Marylandica Zij

Aqua bullient. Q-

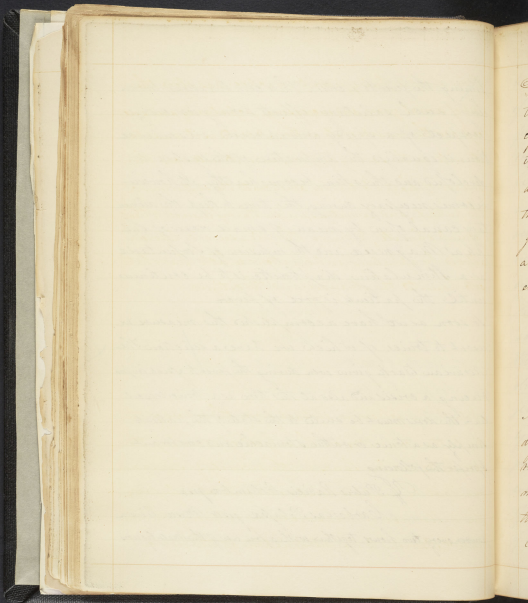
Of this let the patient drink freely. It is true the bay-
onne pepper has been much overlooked as a stimu-
lant, yet if any article is deserving of our confi-
dence it is truly this, it exerts the most powerful &
prompt action, and is decidedly the best stimulant
that can be resorted to in this state. Frequently it
was given in combination with Cinchona stimu-
lating, and imparting tone to the vessels & speedily

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bring the fever to a crisis. These combinations produ-
cing such salutary effects soon gives way
prospects of a speedy convalescence, & as vascular ac-
tion is equalized, the temperature of the system is
developed and the skin becomes healthy. It however
becomes necessary during this time to keep the alimen-
tary canal open by means of a small dose of Sul-
phat Magnesia, and the infusion of Sassafras
as a stimulating diaphoretic is to be continued
until the patient is free of fever.

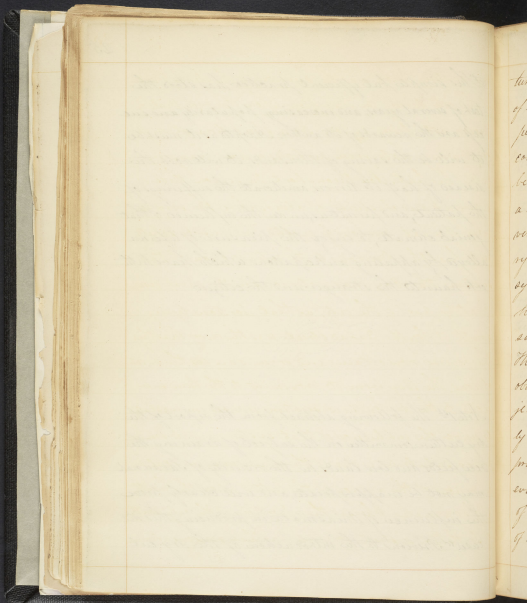
So soon as we have accomplished this measure we
resort to tonics of which we have a selection. The
Peruvian Bark gives even during the fever to a crisis in pro-
ducing a crisis and also at this time as a tonic is equal-
led the dose must be suited to the state of the patient
simply as a tonic or rather stomachic and corroborant
Specify the following

℞ Pulvis Radicis Solumboe gr iij
Carbonas. Potassae gr iij. Misco. Given
powder every two hours, together with a free use of the Malt liquors



This simple but efficient practice has stood the test of several years, and increasing popularity and success are the rewards of its author. Adopted as it must be it will be the saving of thousands, it will rob the disease of half its terror, ameliorate the sufferings of the patient, and permit us, under the influence of that genial climate, to enjoy the pleasures of life unalloyed by appalling anticipations which have hitherto haunted the stranger and the citizen.

Notth The following abstract from the report of the dry culture committee on the subject of draining the rice fields and low lands in the vicinity of Saranah may not be inappropriate, and will clearly prove the influence of Miasmatic in producing this disease. Previous to the introduction of the dry cul



ture system, such was the humidity of the atmosphere of this city during the long flow upon the river that a person after being exposed for a short time at night could wring water from his locks of hair hanging below his hat, now throughout the season there is a dryness and elasticity of atmosphere the very reverse of what previously existed. This must be salutary to health. Previous to the introduction of this system, the Bay was notoriously the most unhealthy part of the city, as that portion lying south of South Broad street was the most healthy. The reverse now obtains and from causes the most obvious. The Bay from its proximity to the land subjected to the dry culture system is most immediately under the influence of that system, and its improved salubrity is one of the many unequivocal evidences of the agency of the latter upon the health of Savannah. Whereas that portion of the city south of South Broad street formerly farthest removed from

the cultivation of Rice has within the last three years been thrown more immediately under the influence of a wet culture by the opening of an extensive Rice field immediately to its South West. The appearance of the inhabitants is much changed. Formerly a stranger was impressed with the melancholy character of the climate by the blanched faces of our inhabitants. It can be remarked generally that their faces are quite as indicative of health as those of persons residing in cities to the North. Besides these evidences your committee refer you to the bills of mortality. It will appear that the proportions of persons dying of autumnal disease, to the population for several years past previous to since the adoption of this system is as follows.

Wet Culture		Dry Culture	
In 1815	one in 15	In 1818	one in 62 $\frac{3}{4}$
1816	do do 18	1819	do do 13
1817	do do 9 $\frac{3}{4}$	1820	do do 5 $\frac{1}{10}$
		1821	do do 37

Dry culture

In 1822 one in 33 $\frac{1}{3}$

1823 do do 32 $\frac{1}{2}$

The estimate of deaths previous to the introduction of this system for a number of years was about one in fourteen. In 1819 there was a remarkable addition of a labouring class of whites to our population from exposure in temperance and a number of these fell victims to our climate swelled the bill of mortality. In 1820 the yellow fever raged to a great extent. The last three years of the term there was about one death to every 34 which compared to the last three years that elapsed previous to the introduction of the dry culture system is incontrovertible evidence of the advantage of that system.

bellman